

REMARKS

This Amendment is filed in response to an Office Action mailed May 5, 2004. Claims 23-48 are pending. By this Amendment, claims 24-26, 28, 34, 40-42, and 47-48  
5 are amended.

The Office Action has objected to the use of certain trademarks in the specification. Accordingly, the specification has been revised to show known trademarks in all-capital letters. Pursuant to MPEP 608.01(v) it is believed that, in this country, their meanings are well-known and satisfactorily defined in the literature. Therefore  
10 withdrawal of this objection is requested. The specification was further amended to correct a typographical error in the priority document identification.

Claims 40, 41, 47, and 48 were rejected under 35 U.S.C. 112 ¶ 2 for indefiniteness with respect to claims made for molecular weights without respect to daltons or KiloDaltons. The claims were amended without narrowing to recite molecular  
15 weights in Daltons. Withdrawal of these rejections is therefore requested.

Certain claims have been rejected under 35 U.S.C. §§ 102(b) and 103(a). As set forth in the Manual of Patent Examination Procedure (MPEP), the prior art reference (or references when combined) must teach or suggest all the claim limitations in order to establish a prima facie case of obviousness or anticipation, see MPEP 2142. Further, to  
20 establish obviousness, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done, see MPEP 2142. Further, if proposed modification would render the prior art invention being modified

unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. MPEP 2143, emphasis added. And, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not  
5 sufficient to render the claims prima facie obvious. MPEP 2143, emphasis added.

Claims 23-26 were rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 5,410,016 (Hubbell et al.). Claim 24 has been rewritten and includes all the elements of its former parent claim, claim 23, which has been cancelled. This rejection is respectfully traversed on the grounds that Hubbell et al. does not  
10 disclose the claimed crosslinking agent comprising a protein reactive functional component. Hubbell et al. teaches reactive functional components for reacting with each other, and not for reacting with a protein. For example, at col. 6, lines 11-23, Hubbell et al. teach that the reactive functional groups react with each other and not with the proteins in the tissues to which they are exposed. Instead, the macromers formed an  
15 interpenetrating network of the hydrogel with the proteins of the tissue. An interpenetrating network, in this context, means that the macromers polymerized to form a hydrogel that interpenetrated with the tissue without covalently bonding to the tissue. An interpenetrating network would be consistent with free radical polymerizable groups of the macromers of Hubbell et al. reacting with each other, but not with a protein. Thus  
20 Hubbell et al. teaches away from the claimed element. Since Hubbell et al. teaches functional groups that are not for reacting with a protein, this reference does not teach or suggest the claimed crosslinking agent comprising a protein reactive functional component. Therefore withdrawal of this rejection is requested.

Claims 23-48 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hubbell et al. (U.S. Patent No. 5,410,016) as modified by Rubenstein et al. (United States Patent No. 4,101,380) and Pathak et al. (United States Patent No. 6,156,531).

The combination of Hubbell et al. with the other references is respectfully  
5 traversed on the grounds that there can be no prima facie case of obviousness because a person of ordinary skill in these arts would not be motivated to combine Hubbell et al. with either Rubenstein et al. or Pathak et al. Firstly, Hubbell et al. teaches macromers with functional groups that are non-reactive with proteins so the modification of Hubbell et al. to make crosslinkers that are reactive with proteins is a direct contradiction to the  
10 teaching of Hubbell et al. Secondly, Hubbell et al. teaches that macromers are to be reacted by use of a triggering agent, but the proposed combination of references conflicts with this teaching.

As already discussed, Hubbell et al. teaches the use of functional groups that do not react with proteins. Changing these materials to interact with proteins would have an  
15 uncertain outcome with respect to the proposed uses of the materials of Hubbell et al., which include prevention of surgical adhesions, controlled drug delivery, tissue adhesives, tissue coatings, and tissue supports (see headings in col. 10 and 11). The outcome would be uncertain because materials formed for these uses would have different effects on a tissue or drug if the materials were reacted to the tissue or drug as  
20 proposed. Thus, changing the inventions of Hubbell et al. to create inventions that react with proteins would change the principle of operation of the inventions. Therefore combining Hubbell et al. with Rubenstein et al. or Pathak et al. to create a protein-reactable materials would change the principle of the invention. Further, Hubbell teaches

away from the claimed invention by teaching the use of functional groups that do not react with proteins instead of what is claimed herein, i.e., functional groups that react with proteins. Since Hubbell et al. teaches away from the claimed invention, and modification of the Hubbell et al. reference as proposed in the Office Action would  
5 require changing the principle of operation of Hubbell et al., withdrawal of this rejection is requested.

Further, combining Hubbell et al. with Pathak et al. and Rubenstein et al. to make the presently claimed invention, as proposed in the Office Action, would require negating the Hubbell et al. teaching of the use of reactive functional groups that require a  
10 triggering agent such as heat or heat or light to form crosslinks. Hubbell et al. describes the formation of materials by an energy source, i.e., heat or light that trigger reaction of the crosslinker to form crosslinks, e.g., by employment of thermal or photo initiators, e.g., see col. 9., line 20 et seq. The energy source for the initiation of polymerization to form the hydrogel in vivo allows for the Hubbell et al. macromers to be positioned before  
15 they react with each other and also allows for control the formation of hydrogels by placement of the initiator and/or energy source. For example, Hubbell et al. teaches that an object of the invention is to form very thin or ultra thin layers in vivo in a very short time frame, see, e.g., col. 4, lines 21-26. Hubbell et al. teaches that thin layers may be formed by applying an initiator to a surface such as a blood vessel, applying a macromer  
20 solution, and then using an energy source to polymerize the macromers to form a thin coating, see col. 10 line 67 to col. 11 line 7. This example shows how combining Hubbell et al. with Pathak et al. or Rubenstein et al., as suggested by the Office Action, would change the principle of operation of Hubbell et al. Since modification of the Hubbell et

al. reference as proposed in the Office Action would require changing the principle of operation of Hubbell et al., withdrawal of this rejection is requested.

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are  
5 respectfully requested.

The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,



Curtis B. Herbert, Ph.D., Esq.  
Registration No. 45,443

Customer No. 24113  
15 Patterson, Thuent, Skaar & Christensen, P.A.  
4800 IDS Center  
80 South 8th Street  
Minneapolis, Minnesota 55402-2100  
Telephone: (612) 349-3008  
20